



SEQUENCE LISTING

<110> TAKEDA, Masatoshi
TAKEDA, Junji

<120> Gene Mutant Animals

<130> P19743

<140> 09/581,528

<141> 2000-10-26

<150> PCT/JP99/00015

<151> 1999-01-07

<160> 22

<170> PatentIn version 3.3

<210> 1

<211> 467

<212> PRT

<213> Human

<400> 1

Met Thr Glu Leu Pro Ala Asx Leu Ser Tyr Phe Gln Asn Ala Gln Met
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Ser Glu Asp Asn His Leu Ser Asn Thr Val Arg Ser Gln Asn Asp Asn
20 25 30

Arg Glu Arg Gln Glu His Asn Asp Arg Arg Ser Leu Gly His Pro Glu
35 40 45

Pro Leu Ser Asn Gly Arg Pro Gln Gly Asn Ser Arg Gln Val Val Glu
50 55 60

Gln Asp Glu Glu Glu Asp Glu Glu Leu Thr Leu Lys Tyr Gly Ala Lys
65 70 75 80

His Val Ile Met Leu Phe Val Pro Val Thr Leu Cys Met Val Val Val
85 90 95

Val Ala Thr Ile Lys Ser Val Ser Phe Tyr Thr Arg Lys Asp Gly Gln
100 105 110

Leu Ile Tyr Thr Pro Phe Thr Glu Asp Thr Glu Thr Val Gly Gln Arg
115 120 125

Ala Leu His Ser Ile Leu Asn Ala Ala Ile Met Ile Ser Val Ile Val
130 135 140

Val Met Thr Ile Leu Leu Val Val Leu Tyr Lys Tyr Arg Cys Tyr Lys
145 150 155 160

Val Ile His Ala Trp Leu Ile Ile Ser Ser Leu Leu Leu Leu Phe Phe
165 170 175

Phe Ser Phe Ile Tyr Leu Gly Glu Val Phe Lys Thr Tyr Asn Val Ala
180 185 190

Val Asp Tyr Ile Thr Val Ala Leu Leu Ile Trp Asn Phe Gly Val Val
195 200 205

Gly Met Ile Ser Ile His Trp Lys Gly Pro Leu Arg Leu Gln Gln Ala
210 215 220

Tyr Leu Ile Met Ile Ser Ala Leu Met Ala Leu Val Phe Ile Lys Tyr
225 230 235 240

Leu Pro Glu Trp Thr Ala Trp Leu Ile Leu Ala Val Ile Ser Val Tyr
245 250 255

Asp Leu Asp Ala Val Leu Cys Pro Lys Gly Pro Leu Arg Met Leu Val
260 265 270

Glu Thr Ala Gln Glu Arg Asn Glu Thr Leu Phe Pro Ala Leu Ile Tyr
275 280 285

Ser Ser Thr Met Val Trp Leu Val Asn Met Ala Glu Gly Asp Pro Glu
 290 295 300

Ala Gln Arg Arg Val Ser Lys Asn Ser Lys Tyr Asn Ala Glu Ser Thr
 305 310 315 320

Glu Arg Glu Ser Gln Asp Thr Val Ala Glu Asn Asp Asp Gly Gly Phe
 325 330 335

Ser Glu Glu Trp Glu Ala Gln Arg Asp Ser His Leu Gly Pro His Arg
 340 345 350

Ser Thr Pro Glu Ser Arg Ala Ala Val Gln Glu Leu Ser Ser Ser Ile
 355 360 365

Leu Ala Gly Glu Asp Pro Glu Glu Arg Gly Val Lys Leu Gly Leu Gly
 370 375 380

Asp Phe Ile Phe Tyr Ser Val Leu Val Gly Lys Ala Ser Ala Thr Ala
 385 390 395 400

Ser Gly Asp Trp Asn Thr Thr Ile Ala Cys Phe Val Ala Ile Leu Ile
 405 410 415

Gly Leu Cys Leu Thr Leu Leu Leu Leu Ala Ile Phe Lys Lys Ala Leu
 420 425 430

Pro Ala Leu Pro Ile Ser Ile Thr Phe Gly Leu Val Phe Tyr Phe Ala
 435 440 445

Thr Asp Tyr Leu Val Gln Pro Phe Met Asp Gln Leu Ala Phe His Gln
 450 455 460

Phe Tyr Ile
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<211> 1404
 <212> DNA
 <213> Human

<400> 2

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agacggagcc ttggccaccc tgagccatta tctaattggac gaccccaggg taactcccgg	180
caggtggtgg agcaagatga ggaagaagat gaggagctga cattgaaata tggcgccaag	240
catgtgatca tgctctttgt ccctgtgact ctctgcatgg tggtggtcgt ggctactatt	300
aagtcagtca gctttttatc ccggaaggat gggcagctaa tctatacccc attcacagaa	360
gataccgaga ctgtgggcca gagagccctg cactcaattc tgaatgctgc catcatgatc	420
agtgtcattg ttgtcatgac tatcctcctg gtggttctgt ataaatacag gtgctataag	480
gtcatccatg cctggcttat tataatcatct ctattgttgc tgttcttttt ttcattcatt	540
tacttggggg aagtgtttta aacctataac gttgctgtgg actacattac tgttgcactc	600
ctgatctgga attttggtgt ggtgggaatg atttccattc actggaaagg tccacttcga	660
ctccagcagg catatctcat tatgattagt gccctcatgg ccctgggtgtt tatcaagtac	720
ctccctgaat ggactgcgtg gctcatcttg gctgtgattt cagtatatga tttagtggct	780
gttttgtgtc cgaaagggtcc acttcgtatg ctggttgaaa cagctcagga gagaaatgaa	840
acgctttttc cagctctcat ttactcctca acaatgggtg ggttggtgaa tatggcagaa	900
ggagacccgg aagctcaaag gagagtatcc aaaaattcca agtataatgc agaaagcaca	960
gaaagggagt cacaagacac tgttgcagag aatgatgatg gcgggttcag tgaggaatgg	1020
gaagcccaga gggacagtca tctagggcct catcgctcta cacctgagtc acgagctgct	1080
gtccaggaac tttccagcag tatcctcgct ggtgaagacc cagaggaaag gggagtaaaa	1140
cttggattgg gagatttcat tttctacagt gttctgggtg gttaaagcctc agcaacagcc	1200
agtggagact ggaacacaac catagcctgt ttcgtagcca tattaattgg tttgtgcctt	1260
acattattac tccttgccat tttcaagaaa gcattgccag ctcttccaat ctccatcacc	1320

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gcattccatc aattttatat ctag 1404

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<212> PRT
<213> Mouse

<400> 3

Met Thr Glu Ile Pro Ala Pro Leu Ser Tyr Phe Gln Asn Ala Gln Met
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Ser Glu Asp Ser His Ser Ser Ser Ala Ile Arg Ser Gln Asn Asp Ser
20 25 30

Glu Glu Arg Gln Gln Gln His Asp Arg Gln Arg Leu Asp Asn Pro Glu
35 40 45

Pro Ile Ser Asn Gly Arg Pro Gln Ser Asn Ser Arg Gln Val Val Glu
50 55 60

Gln Asp Glu Glu Glu Asp Glu Glu Leu Thr Leu Lys Tyr Gly Ala Lys
65 70 75 80

His Val Ile Met Leu Phe Val Pro Val Thr Leu Cys Met Val Val Val
85 90 95

Val Ala Thr Ile Lys Ser Val Ser Phe Tyr Thr Arg Lys Asp Gly Gln
100 105 110

Leu Ile Tyr Thr Pro Phe Thr Glu Asp Thr Glu Thr Val Gly Gln Arg
115 120 125

Ala Leu His Ser Ile Leu Asn Ala Ala Ile Met Ile Ser Val Ile Val
130 135 140

Ile Met Thr Ile Leu Leu Val Val Leu Tyr Lys Tyr Arg Cys Tyr Lys

145		150		155		160									
Val	Ile	His	Ala	Trp	Leu	Ile	Ile	Ser	Ser	Leu	Leu	Leu	Leu	Phe	Phe
				165					170					175	
Phe	Ser	Phe	Ile	Tyr	Leu	Gly	Glu	Val	Phe	Lys	Thr	Tyr	Asn	Val	Ala
			180						185				190		
Val	Asp	Tyr	Val	Thr	Val	Ala	Leu	Leu	Ile	Trp	Asn	Phe	Gly	Val	Val
		195					200					205			
Gly	Met	Ile	Ala	Ile	His	Trp	Lys	Gly	Pro	Leu	Arg	Leu	Gln	Gln	Ala
	210					215					220				
Tyr	Leu	Ile	Met	Ile	Ser	Ala	Leu	Met	Ala	Leu	Val	Phe	Ile	Lys	Tyr
225					230					235					240
Leu	Pro	Glu	Trp	Thr	Ala	Trp	Leu	Ile	Leu	Ala	Val	Ile	Ser	Val	Tyr
				245					250					255	
Asp	Leu	Val	Ala	Val	Leu	Cys	Pro	Lys	Gly	Pro	Leu	Arg	Met	Leu	Val
			260						265				270		
Glu	Thr	Ala	Gln	Glu	Arg	Asn	Glu	Thr	Leu	Phe	Pro	Ala	Leu	Ile	Tyr
		275					280					285			
Ser	Ser	Thr	Met	Val	Trp	Leu	Val	Asn	Met	Ala	Glu	Gly	Asp	Pro	Glu
	290					295					300				
Ala	Glu	Arg	Arg	Val	Pro	Lys	Asn	Pro	Lys	Tyr	Asn	Thr	Gln	Arg	Ala
305					310					315					320
Glu	Arg	Glu	Thr	Gln	Asp	Ser	Gly	Ser	Gly	Asn	Asp	Asp	Gly	Gly	Phe
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Ser	Glu	Glu	Trp	Glu	Ala	Gln	Arg	Asp	Ser	His	Leu	Gly	Pro	His	Arg
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Ser Thr Pro Glu Ser Arg Ala Ala Val Gln Glu Leu Ser Gly Ser Ile
 355 360 365

Leu Thr Ser Glu Asp Pro Glu Glu Arg Gly Val Lys Leu Gly Leu Gly
 370 375 380

Asp Phe Ile Phe Tyr Ser Val Leu Val Gly Lys Ala Ser Ala Thr Ala
 385 390 395 400

Ser Gly Asp Trp Asn Thr Thr Ile Ala Cys Phe Val Ala Ile Leu Ile
 405 410 415

Gly Leu Cys Leu Thr Leu Leu Leu Ala Ile Phe Lys Lys Ala Leu
 420 425 430

Pro Ala Leu Pro Ile Ser Ile Thr Phe Gly Leu Val Phe Tyr Phe Ala
 435 440 445

Thr Asp Tyr Leu Val Gln Pro Phe Met Asp Gln Leu Ala Phe His Gln
 450 455 460

Phe Tyr Ile
 465

<210> 4
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 <212> DNA
 <213> Mouse

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 aggcagagac ttgacaaccc tgagccaata tctaattgggc ggccccagag taactcaaga 180
 caggtggtgg aacaagatga ggaggaagac gaagagctga cattgaaata tggagccaag 240
 catgtcatca tgctctttgt ccccgtagacc ctctgcatgg tcgtcgtcgt gccaccatc 300

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aatcagtc gcttctatac ccggaaggac ggtcagctaa tctacacccc attcacagaa 360
gacactgaga ctgtaggcca aagagccctg cactcgatcc tgaatgcggc catcatgatc 420
agtgtcattg tcattatgac catcctcctg gtggctcctgt ataaatacag gtgctacaag 480
gtcatccacg cctggccttat tatttcatct ctgttggtgc tgttcttttt ttcgttcatt 540
tacttagggg aagtatttaa gacctacaat gtcgccgtgg actacgttac agtagcactc 600
ctaactctgga attttggtgt ggtcgggatg attgccatcc actggaaagg ccccttcga 660
ctgcagcagg cgtatctcat tatgatcagt gccctcatgg ccctgggtatt tatcaagtac 720
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gttttatgtc ccaaaggccc acttcgtatg ctggttgaaa cagctcagga aagaaatgag 840
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ggagaccag aagcccaaag gagggtagcc aagaaccca agtataacac acaagagcgc 960
gagagagaga cacaggacag tggttctggg aacgatgatg gtggcttcag tgaggagtgg 1020
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gtccaggaaac tttctgggag cattctaacg agtgaagacc cggaggaaag aggagtaaaa 1140
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agtggagact ggaacacaac catagcctgc tttgtagcca tactgatcgg cctgtgcctt 1260
acattactcc tgctcgccat tttcaagaaa gcgttgccag ccctcccat ctccatcacc 1320
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gcattccatc agttttatat ctag 1404

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<220>
<223> Primer

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<400> 5

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25

<210> 6
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 6
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23

<210> 7
 <211> 36
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 7
 tgtggtcggg atgatcgcca cccactggaa aggccc

36

<210> 8
 <211> 36
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 8
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36

<210> 9
 <211> 18
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 9
 tctagacggc cgtctaga

18

<210> 10
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 10
agatctgccg gcagatct

18

<210> 11
<211> 30
<212> DNA
<213> Artificial

<220>
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<400> 11
cccaactcta tttctaccct cgttcacatctg

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<210> 12
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 12
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30

<210> 13
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 13
tgctggagga aaatgtgtta tttaagagca

30

<210> 14
<211> 30
<212> DNA
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<220>
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<400> 14
tactgaaatc acagccaaga tgagccatgc

30

<210> 15
<211> 30
<212> DNA
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<400> 15
ggtccatccc agcttcacac agacaagtct

30

<210> 16
<211> 30
<212> DNA
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<220>
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<400> 16
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30

<210> 17
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 17
tagtgagacg tgctacttcc atttgtcacg

30

<210> 18
 <211> 36
 <212> DNA
 <213> Artificial

 <220>
 <223> synthetic construct

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> m is t or c

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> n is a, g, or c

<400> 18
 tgtggtcggg atgatmgcca nccactggaa aggccc

36

<210> 19
 <211> 36
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 <213> Artificial

 <220>
 <223> synthetic construct

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> m is t or c

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> n is c

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36

<210> 20
 <211> 36
 <212> DNA

<213> Artificial

<220>

<223> synthetic construct

<220>

<221> misc_feature

<222> (16)..(16)

<223> m i s t o r c

<220>

<221> misc_feature

<222> (20)..(22)

<223> n i s a, g, t, o r c wherein nnn represents a codon as triplet
bases encoding an amino acid other than isoleucine

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tgtggtcggg atgatmgccn nncactggaa aggccc

36

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<211> 12

<212> DNA

<213> Artificial

<220>

<223> oligodeoxynucleotide

<400> 21

ctagacggcc gt

12

<210> 22

<211> 18

<212> DNA

<213> Artificial

<220>

<223> vector

<400> 22

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18